

CLAIMS

What is claimed is:

1. An isolated polypeptide comprising residues 2 to 129 of SEQ ID NO:2.
2. The isolated polypeptide according to claim 1, wherein the polypeptide comprises residues 2 to X of SEQ ID NO:2; wherein X is an integer between 130 and 136.
3. The isolated polypeptide according to claim 1, wherein the polypeptide comprises residues 1 to 129 of SEQ ID NO:2.
4. The isolated polypeptide according to claim 3, wherein the polypeptide comprises residues 1 to X of SEQ ID NO:2, wherein X is an integer between 130 and 136.
5. The isolated polypeptide according to claim 1, wherein the polypeptide is selected from the group consisting of:
 - a) polypeptides comprising residues 1 to 161 of SEQ ID NO:2; and
 - b) polypeptides comprising residues 1 to 269 of SEQ ID NO:2.
6. An isolated polypeptide selected from the group consisting of:
 - a) polypeptides comprising residues 1 to 297 of SEQ ID NO:27;
 - b) polypeptides comprising residues 1 to 267 of SEQ ID NO:29; and
 - c) polypeptides comprising residues 1 to 299 of SEQ ID NO:35.
7. An isolated polypeptide comprising residues 1 to 173 of SEQ ID NO:38.
8. An isolated polypeptide selected from the group consisting of:
 - a) polypeptide molecules comprising residues 1 to 147 of SEQ ID NO:38;
 - b) polypeptide molecules comprising residues 1 to 154 of SEQ ID NO:38;

and

- c) polypeptide molecules comprising residues 1 to 163 of SEQ ID NO:38;
- d) polypeptide molecules comprising residues 1 to 165 of SEQ ID NO:38.

9. An isolated polynucleotide that encodes the polypeptide according to

claim 1.

10. A isolated polynucleotide that encodes the polypeptide according to

claim 6.

11. A isolated polynucleotide that encodes the polypeptide according to

claim 7.

12. A isolated polynucleotide that encodes the polypeptide according to

claim 8.

13. An expression vector comprising the following operably linked

elements:

- a) a transcription promoter;
- b) a DNA segment wherein the DNA segment is a polynucleotide molecule encoding the polypeptide molecule of claim 3; and
- c) a transcription terminator.

14. The expression vector according to claim 13 wherein the DNA

segment contains an affinity tag.

15. A cultured cell into which has been introduced an expression vector

according to claim 13, wherein said cell expresses the polypeptide encoded by the DNA segment.

16. A method of producing a polypeptide comprising culturing a cell according to claim 15, whereby said cell expresses the polypeptide encoded by the DNA segment; and recovering the polypeptide.

17. The polypeptide produced by the method of claim 16.

18. A method of detecting lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma comprising, contacting said lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma with a polynucleotide consisting of the polynucleotide sequence as shown in SEQ ID NOs:1, 31, 32, 33, or 36, wherein the polynucleotide hybridizes to the nucleic acid in the lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma.

19. The method of detecting lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma according to claim 18, wherein the polynucleotide is selected from the group consisting of:

- a) a polynucleotide consisting of at least 16 contiguous nucleotides as shown in SEQ ID NO:1;
- b) a polynucleotide consisting of from 17 to 25 contiguous nucleotides as shown in SEQ ID NO:1;
- c) a polynucleotide consisting of 40 contiguous nucleotides as shown in SEQ ID NO:1;
- d) a polynucleotide consisting of 60 contiguous nucleotides as shown in SEQ ID NO:1;
- e) a polynucleotide consisting of at least 16 contiguous nucleotides as shown in SEQ ID NO:31;
- f) a polynucleotide consisting of from 17 to 25 contiguous nucleotides as shown in SEQ ID NO:31;
- g) a polynucleotide consisting of 40 contiguous nucleotides as shown in SEQ ID NO:31;

- h) a polynucleotide consisting of 60 contiguous nucleotides as shown in SEQ ID NO:31;
- i) a polynucleotide consisting of at least 16 contiguous nucleotides as shown in SEQ ID NO:33;
- j) a polynucleotide consisting of from 17 to 25 contiguous nucleotides as shown in SEQ ID NO:33;
- k) a polynucleotide consisting of 40 contiguous nucleotides as shown in SEQ ID NO:33;
- l) a polynucleotide consisting of 60 contiguous nucleotides as shown in SEQ ID NO:33;
- m) a polynucleotide consisting of at least 16 contiguous nucleotides as shown in SEQ ID NO:36;
- n) a polynucleotide consisting of from 17 to 25 contiguous nucleotides as shown in SEQ ID NO:36;
- o) a polynucleotide consisting of 40 contiguous nucleotides as shown in SEQ ID NO:36;
- p) a polynucleotide consisting of 60 contiguous nucleotides as shown in SEQ ID NO:36;
- q) a polynucleotide encoding a polypeptide consisting of at least 16 contiguous nucleotides as shown in SEQ ID NO:38;
- r) a polynucleotide encoding a polypeptide consisting of from 17 to 25 contiguous nucleotides as shown in SEQ ID NO:38;
- s) a polynucleotide encoding a polypeptide consisting of 40 contiguous nucleotides as shown in SEQ ID NO:38;
- t) a polynucleotide encoding a polypeptide consisting of 60 contiguous nucleotides as shown in SEQ ID NO:38; and
- u) a polynucleotide encoding a polypeptide, wherein the polypeptide comprises residues 139 to 297 of SEQ ID NO:27, or residues 139 to 267 of SEQ ID NO:29.

v) A method of detecting lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma comprising, contacting said lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma with an antibody to the polypeptide according to claim 2 .

20. A method of detecting lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma according to claim 19 wherein the antibody is generated to a polypeptide selected from the group consisting of:

- a) a polypeptide comprising residues 4 to 13 of SEQ ID NO:2;
- b) a polypeptide comprising residues 17 to 39 of SEQ ID NO:2;
- c) a polypeptide comprising residues 44 to 60 of SEQ ID NO:2;
- d) a polypeptide comprising residues 69 to 104 of SEQ ID NO:2;
- e) a polypeptide comprising residues 106 to 115 of SEQ ID NO:2;
- f) a polypeptide comprising residues 128 to 136 of SEQ ID NO:2;
- g) a polypeptide comprising residues 165 to 174 of SEQ ID NO:2;
- h) a polypeptide comprising residues 179 to 204 of SEQ ID NO:2;
- i) a polypeptide comprising residues 245 to 260 of SEQ ID NO:2;
- j) a polypeptide comprising residues 1 to 13 of SEQ ID NO:2;
- k) a polypeptide comprising residues 21 to 38 of SEQ ID NO:2;
- l) a polypeptide comprising residues 44 to 59 of SEQ ID NO:2;
- m) a polypeptide comprising residues 88 to 99 of SEQ ID NO:2;
- n) a polypeptide comprising residues 165 to 173 of SEQ ID NO:2;
- o) a polypeptide comprising residues 194 to 205 of SEQ ID NO:2;
- and
- p) a polypeptide comprising residues 213 to 221 of SEQ ID NO:2.

21. A method of detecting lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma according to claim 19 wherein the antibody is generated to a polypeptide selected from the group consisting of:

- a) a polypeptide comprising residues 181 to 210 of SEQ ID NO:35;
- b) a polypeptide comprising residues 219 to 226 of SEQ ID NO:35;
- c) a polypeptide comprising residues 218 to 236 of SEQ ID NO:35;
- d) a polypeptide comprising residues 162 to 169 of SEQ ID NO:38;
- e) a polypeptide comprising residues 149 to 173 of SEQ ID NO:38;
- f) a polypeptide comprising residues 194 to 236 of SEQ ID NO:35;
- g) a polypeptide comprising residues 150 to 171 of SEQ ID NO:38;
- h) a polypeptide comprising residues 230 to 235 of SEQ ID NO:35;
- and
- i) a polypeptide comprising residues 151 to 158 of SEQ ID NO:38.

22. A method of detecting lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma according to claim 19 wherein the antibody is generated to a polypeptide selected from the group consisting of:

- a) a polypeptide consisting of residues 4 to 13 of SEQ ID NO:2;
- b) a polypeptide consisting of residues 17 to 39 of SEQ ID NO:2;
- c) a polypeptide consisting of residues 44 to 60 of SEQ ID NO:2;
- d) a polypeptide consisting of residues 69 to 104 of SEQ ID NO:2;
- e) a polypeptide consisting of residues 106 to 115 of SEQ ID NO:2;
- f) a polypeptide consisting of residues 128 to 136 of SEQ ID NO:2;
- g) a polypeptide consisting of residues 165 to 174 of SEQ ID NO:2;
- h) a polypeptide consisting of residues 179 to 204 of SEQ ID NO:2;
- i) a polypeptide consisting of residues 245 to 260 of SEQ ID NO:2;
- j) a polypeptide consisting of residues 1 to 13 of SEQ ID NO:2;
- k) a polypeptide consisting of residues 21 to 38 of SEQ ID NO:2;
- l) a polypeptide consisting of residues 44 to 59 of SEQ ID NO:2;
- m) a polypeptide consisting of residues 88 to 99 of SEQ ID NO:2;
- n) a polypeptide consisting of residues 165 to 173 of SEQ ID NO:2;
- o) a polypeptide consisting of residues 194 to 205 of SEQ ID NO:2;
- and
- p) a polypeptide consisting of residues 213 to 221 of SEQ ID NO:2.

23. A method of detecting lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma according to claim 19 wherein the antibody is generated to a polypeptide selected from the group consisting of:

- a) a polypeptide consisting of residues 181 to 210 of SEQ ID NO:35;
- b) a polypeptide consisting of residues 219 to 226 of SEQ ID NO:35;
- c) a polypeptide consisting of residues 218 to 236 of SEQ ID NO:35;
- d) a polypeptide consisting of residues 162 to 169 of SEQ ID NO:38;
- e) a polypeptide consisting of residues 149 to 173 of SEQ ID NO:38;
- f) a polypeptide consisting of residues 194 to 236 of SEQ ID NO:35;
- g) a polypeptide consisting of residues 150 to 171 of SEQ ID NO:38;
- h) a polypeptide consisting of residues 230 to 235 of SEQ ID NO:35;
- and
- i) a polypeptide consisting of residues 151 to 158 of SEQ ID NO:38.

24. A method of inhibiting the quantity of lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma cells expressing a polypeptide selected from the group consisting of:

- a) an isolated polypeptide as shown in SEQ ID NO:2 ;
- b) an isolated polypeptide as shown in SEQ ID NO:27;
- c) an isolated polypeptide as shown in SEQ ID NO:29; and
- d) an isolated polypeptide as shown in SEQ ID NO:35;

comprising administering to the cells an isolated polypeptide wherein the isolated polypeptide consists of residues 1 to X of SEQ ID NO:2, wherein X is an integer between 129 and 136.

25. A method of modulating apoptosis of lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma cells comprising administering to the cells an isolated polypeptide wherein the isolated polypeptide comprises the polypeptide according to claim 2.

26. The method of modulating apoptosis of lung carcinoma, breast carcinoma, melanoma, osteosarcoma, or lymphoma cells according to claim 25, wherein the isolated polypeptide comprises the polypeptide according to claim 4.

27. An isolated polypeptide consisting of residues 2 to 129 of SEQ ID NO:2.

28. The isolated polypeptide according to claim 27, wherein the polypeptide consists of residues 2 to X of SEQ ID NO:2; wherein X is an integer between 130 and 136.

29. The isolated polypeptide according to claim 27, wherein the polypeptide consists of residues 1 to 129 of SEQ ID NO:2.

30. The isolated polypeptide according to claim 29, wherein the polypeptide consists of residues 1 to X of SEQ ID NO:2, wherein X is an integer between 130 and 136.

31. The isolated polypeptide according to claim 27, wherein the polypeptide is selected from the group consisting of

- a) polypeptides consisting of residues 1 to 161 of SEQ ID NO:2; and
- b) polypeptides consisting of residues 1 to 269 of SEQ ID NO:2.

32. An isolated polypeptide selected from the group consisting of:

- a) polypeptides consisting of residues 1 to 297 of SEQ ID NO:27;
- b) polypeptides consisting of residues 1 to 267 of SEQ ID NO:29; and
- c) polypeptides consisting of residues 1 to 299 of SEQ ID NO:35.

33. An isolated polypeptide consisting of residues 1 to 173 of SEQ ID NO:38.

34. An isolated polypeptide selected from the group consisting of:
- a) polypeptide molecules consisting of residues 1 to 147 of SEQ ID
 - b) polypeptide molecules consisting of residues 1 to 154 of SEQ ID
 - c) polypeptide molecules consisting of residues 1 to 163 of SEQ ID
 - d) polypeptide molecules consisting of residues 1 to 165 of SEQ ID

NO:38;

NO:38;

NO:38; and

NO:38.

Sub A2
claim 27.

claim 32.

claim 33.

claim 34.

35. An isolated polynucleotide that encodes the polypeptide according to
36. A isolated polynucleotide that encodes the polypeptide according to
37. A isolated polynucleotide that encodes the polypeptide according to
38. A isolated polynucleotide that encodes the polypeptide according to